

CLAIMS

What is claimed is:

1. A non-aqueous electrolyte secondary battery having a coiled electrode assembly made through the multilayer-winding of:

an positive electrode having a metallic collector coated with an positive electrode mixture, composed of an positive electrode active material that occludes and liberates lithium ions;

a negative electrode having a metallic collector coated with a negative electrode mixture, composed of a negative electrode active material that occludes and liberates lithium ions; and

a separator interposed between the positive electrode and the negative electrode,

wherein the positive electrode has an insulating layer formed by means of the dried coating method, the heat seal tape method, or the hot melt coating method on a portion of the metallic collector uncoated with the positive electrode mixture and opposed to a part of the negative electrode coated with the negative electrode mixture through the separator.

2. The non-aqueous electrolyte secondary battery according to claim 1, wherein the insulating layer has a thickness ranging from equal to or greater than 10 μm to equal to or less than 200 μm .

3. The non-aqueous electrolyte secondary battery according to claim 1, wherein the insulating layer also covers a part of the positive electrode mixture coating.

4. The non-aqueous electrolyte secondary battery according to claim 1,

wherein the insulating layer has a thickness ranging from equal to or greater than 10 μm to equal to or less than 200 μm and also covers a part of the positive electrode mixture coating.

5. The non-aqueous electrolyte secondary battery according to claim 1, wherein the positive electrode mixture layer covers a part of the insulating layer, with the entire surface of the positive electrode mixture layer being of uniform thickness.

6. The non-aqueous electrolyte secondary battery according to claim 1, wherein the insulating layer has a thickness ranging from equal to or greater than 10 μm to equal to or less than 200 μm , and the positive electrode mixture layer covers a part of the insulating layer, with the entire surface of the positive electrode mixture layer being of uniform thickness.

7. A method for producing a non-aqueous electrolyte secondary battery comprising the steps of:

(1) forming an insulating layer of a predetermined width and a certain interval on a sheet of metallic collector;

(2) forming an active material mixture layer and an exposed part of collector where the active material mixture layer is unformed, at every other interval by supplying the metallic collector with an active material mixture slurry between two adjacent insulating layers;

(3) drying the active material mixture layer;

(4) roll-pressing the active material mixture layer to make the surface of the active material mixture layer achieve a uniform thickness; and

(5) cutting the sheet at an exposed part of the metallic collector.

8. A method for producing a non-aqueous electrolyte secondary battery

comprising the steps of:

(1) forming an active material mixture layer by supplying a sheet of metallic collector with an active material mixture slurry for a predetermined width and a certain interval;

(2) drying the active material mixture layer;

(3) roll-pressing the active material mixture layer to make the surface of the active material mixture layer achieve a uniform thickness;

(4) forming an insulating layer of a predetermined width at each end of the active material mixture layer such that there is no gap between the insulating layer and the active material mixture layer and that there is an exposed part of the metallic collector between two adjacent insulating layers; and

(5) cutting the sheet at the exposed part of the metallic collector.